

REMARKS

This Amendment is submitted in response to the Examiner's Office Action dated August 21, 2008. Reconsideration of the application, as presently amended, is respectfully requested. Claims 1-33 were originally filed with this application. Claims 1, 4-6, 22-29 and 33 were previously canceled without prejudice. Claims 34 – 53 were previously added. Claims 2, 3, 7, 12, 17, 30, 34 – 36, 41, 46 and 51 are amended herein. Accordingly, Claims 2, 3, 7-21, 30-32, and 34-53 are currently pending.

Favorable reconsideration of this application is respectfully requested for the reasons set forth in these remarks.

I. CLAIM REJECTION UNDER 35 USC § 112

Claims 2, 3, 7-12 and 30-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Examiner asserts that the application, as filed, only supports monitoring the temperature of the cubed product and not the blended feedstock. Claims 2, 3, 7-12 and 30-32 are amended herein to clarify that the temperature of the cubed product is being monitored. Support exists in the specification as filed for monitoring temperature of the cubed product for purposes of fire prevention. *See, e.g.* Paragraph 0024 (“After the material has been processed through the cuber 104 into the desired shape of combustible product, it is carried along conveyor lines to a transport area 105 for storage for subsequent shipment or for loading directly on trucks to be transported to end users. If heat sensors along the conveyor lines detect that the shaped combustible products have a temperature greater than a pre-

specified limit, the products are diverted from the transport area 105 to a hot box area 106 specially designed to control fires. The hot box area 106 is generally located outside of the processing facility and is equipped, for example, with automatic sprinkler heads, fire fighting hoses, carbon dioxide deluge systems and similar firefighting equipment.”).

In addition, the Examiner states in the Office Action that, “[w]ith respect to the limitation “substantially” regarding the selection of feedstock, the Examiner interprets the limitation to require at least one of the Markush members listed in more than a trace amount. Therefore, the limitation was met by the plastic bottle article as well as wood or cloth taught by *Cantrell* rather than trace amount such mining waste with mistakenly collected windblown paper litter such as material from a quarry or sheet metal with paper lifter or miniscule product labels such as material collected in large construction metal recycling bins.” This limitation now reads “blending feedstock, wherein said feedstock consists substantially of thermoplastic material, cellulosic fibers or combinations thereof.” Support exists in the specification as filed for feedstock consisting substantially of thermoplastic material, cellulosic fibers or combinations thereof. *See, e.g.* Paragraph 0014 (“The feedstock may be made up of thermoplastic material and cellulosic material.”); Paragraph 0015 (“For fast burning and ease of ignition of the fuel pellets, polypropylene and polyethylene are the preferred synthetic thermoplastic materials. In one embodiment of the invention, feedstock is approximately 60% non-chlorinated thermoplastic materials and 40% cellulosic fibers.”); and Paragraph 0016 (“In the case of disposable diapers, the cellulosic fiber required in this invention comprises the cellulosic fiber contained in the diaper stock, and the thermoplastic resin required in this invention comprises the thermoplastic outer layer in the diaper stock. In the case of hygiene pads, the cellulosic fiber element required in this invention comprises the cellulosic fiber contained in the hygiene pad stock,

and the thermoplastic resin required in this invention comprises the thermoplastic outer liner in the hygiene pad stock.”).

Applicant respectfully asserts that these claims comply with the written description requirement and respectfully urges that this rejection be withdrawn.

II. CLAIM REJECTION UNDER 35 USC § 103(a)

The Examiner cites U.S. Patent No. 6,017,475 issued to Cantrell (“*Cantrell*”), either alone or in combination with other references, in rejecting each of the pending claims in the present application. Applicant respectfully urges that the present claims, as herein amended, are patentable over *Cantrell*, either alone or in combination with the other references cited by the Examiner, for at least the following reasons:

1. *Cantrell* does not teach a feedstock consisting substantially of thermoplastic material, cellulosic fibers or combinations thereof.

Each claim in the application includes the limitation that the “feedstock consists substantially of thermoplastic material, cellulosic fibers or combinations thereof” which is not taught by *Cantrell*. *Cantrell* defines “garbage” as “decomposable wastes from food” and defines “rubbish” as “decomposable wastes, either combustible (such as paper, wood, and cloth) or non-combustible (such as metal, glass, and ceramics).” See Col. 1, lines 13-16. *Cantrell* teaches the use of a feedstock consisting of both “garbage” and “rubbish.” See Col. 1, lines 25-30 (“The present invention is primarily directed to the reduction, conversion, decomposition, and destructive distillation of garbage and rubbish (hereinafter *collectively defined as ‘household garbage.’*)”); see also Abstract (“The method of transforming *household garbage* into useful material comprises the

steps of: *providing a quantity of household garbage* having a first volume and a liquid content; reducing the garbage having a first volume to an aggregate shard having a second volume smaller than [sic] the first volume; optionally expelling liquid from the aggregate shard; and heating the aggregate shard under pressure greater than ambient pressure to create an aggregate shard pulp.”); Col. 11, lines 64-65 (“[h]ousehold garbage...is introduced into a hammer mill...”).

Moreover, *Cantrell*’s feedstock consists of a substantial amount of liquid. Col. 9, lines 54-65 (“When the shard exits the expeller unit (depending upon the application), the material is known to be reduced in volumetric proportion to approximately 30% to 75% of its original volume (depending upon the materials)...”) which means that the feedstock is between 25% and 70% liquid. Although *Cantrell*’s feedstock may include some thermoplastic material, cellulosic fibers or combinations thereof, it is not possible for it to consist substantially of those materials because *Cantrell*’s feedstock consists of between 25% and 70% liquid (and therefore neither thermoplastic material nor cellulosic fibers), garbage (and therefore neither thermoplastic material nor cellulosic fibers), and rubbish (which may contain some amount of thermoplastic material and cellulosic fibers). Even if *Cantrell*’s feedstock consisted of a disproportionately large amount of thermoplastic material of cellulosic fibers, it would still include between 25% and 70% liquid and cannot, therefore, be said to consist substantially of thermoplastic material, cellulosic fibers or combinations thereof as claimed by the Applicant.

It is clear that *Cantrell* does not teach a feedstock consisting substantially of thermoplastic material, cellulosic fibers or combinations thereof, and it would not have been obvious in view of *Cantrell* to use such a feedstock. *Cantrell*’s garbage/rubbish mixture contains such a large amount of liquid and *Cantrell*’s invention is directed toward the elimination of liquid inherent in such waste

products. *See, e.g.* Col. 9, lines 54-65 (“Thus, as the tunnel is restricted the shard is squeezed within the confines of the tunnel to force moisture from the shard prior to its exit from the expeller unit. When the shard exits the expeller unit (depending upon the application), the material is known to be reduced in volumetric proportion to approximately 30% to 75% of its original volume (depending upon the materials), with a moisture index of approximately 15% to 40%. In one embodiment of the inventive process the shard is then introduced into a hydrolizer to remove as much of the moisture as desired depending upon the application.”). If *Cantrell*’s feedstock was substantially thermoplastic material, cellulosic fibers or combinations thereof, there would be no need to put the material through an expeller to expel liquid, put the shard into a hydrolyser, and then put into a “commercial oven or other suitable drying mechanism.” Col. 13, lines 10-11.

MPEP § 2143.03 requires that, to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested in the prior art. *In re Royka*, 490 F.2d 981 (CCPA 1974). *Cantrell* does not disclose each and every element of the claimed invention. Specifically, *Cantrell* does not teach a feedstock that consists substantially of thermoplastic material, cellulosic fibers or combinations thereof. In addition, it would not have been obvious to one of skill in the art to use the Applicant’s feedstock because *Cantrell* is concerned with process a wet feedstock and involves at least two steps for the removal of liquid (expelling and hydrolyzing) that are not necessary with the Applicant’s feedstock.

Because the feedstock used in *Cantrell* includes significant amounts of liquid and could not therefore be the same as, or similar to, the Applicant’s feedstock, all the claim limitations are not taught or suggested in the prior art and Applicant respectfully urges that all claims are presently in condition for allowance.

2. Grinder operating *torque* is not a result-effective variable and the Examiner has not shown why it would be optimized within the claimed range.

With respect to Claims 2, 7, 12 and 17, 30, 34, 36, 41, 46 and 51 (and Claims 8-11, 13-16, 18-21, 31, 32, 37-40, 42-45, 47-50, 52, and 53 by dependency), the Examiner asserts that, because *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish, *Cantrell* “obviously” recognizes that the grinder operating torque is a result-effective variable because “given that the velocity and material are ground properly, the torque would be a function of these variables.” The Examiner’s position that torque is a result-effective variable under these circumstances is in error for at least the following reasons:

a. Torque is not a result-effective variable.

The Examiner acknowledges that *Cantrell* does not disclose a grinder operating torque of between about 18,000 and about 20,000 ft-lbs of torque per motor shaft. The Examiner then concludes that, because *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish, “one of ordinary skill in the art would have obviously determined the optimum grinder operating torque through routine experimentation.”

While under certain circumstances grinder operating torque may be a result-effective variable, *Cantrell* does not suggest or teach that torque is an important factor or, for that matter, even a factor to consider and, consequently, torque is not a result-effective variable. See *Ex parte Tilton*, 2008WL533791, (Bd. Pat. App. & Interf. 2008) (“While it may ordinarily be the case that

determination of optimum values for the parameters of a prior art process would be at least be prima facie obvious, that conclusion depends upon what the prior art discloses with respect to those parameters.”).

The torque required for processing garbage containing a substantial amount of liquid would have been of little concern for *Cantrell*. Because the garbage going into *Cantrell*’s grinder is made up of 25 – 70% liquid, it would have a very low viscosity which could be processed with very low torque. One of ordinary skill in the art would not have recognized that the constant velocity grinder used by *Cantrell* to process a low viscosity feedstock would have required adjustments to the torque. There would be no need to optimize the torque and there would certainly be no need to optimize the torque in the range of between about 18,000 and about 20,000 ft-lbs of torque per motor shaft.

A cursory review of *Cantrell* reveals that there is no mention of, or reference to, torque. *Cantrell* does not disclose or suggest that torque is a result-effective variable or in any way relevant for achieving the desired velocity. Although the discovery of an optimum value of a result-effective variable in a known process is ordinarily within the skill of the art, one of the long-standing exceptions to this rule is when the parameter optimized was not recognized in the prior art as one that would affect the results. *See, e.g., Ex parte Malathy*, 2003 WL 21279935 (Bd.Pat.App. & Interf. 2003) (“We do not see any evidence in the record to support the Examiner’s position that the pH is a known result-effective variable in this situation. There is simply no teaching or suggestion in the evidence of record to adjust the pH of a colorant blend or to achieve a particular pH range as here claimed.”)(emphasis added); *Ex Parte Alsop*, 2001WL863722 (Bd.Pat.App. & Interf. 2001) (finding that, because the cited reference does not disclose or suggest that number average molecular weight

is a result-effective variable or in any way relevant for achieving effective peritoneal dialysis, it was not a result-effective variable)(emphasis added); *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977); *Ex parte Datta, et al.*, 2008WL4759864, (Bd.Pat.App. & Interf. 2008).

When there is no evidence in the record to support the Examiner's position that the parameter is a result-effective variable, the variable cannot be deemed to be result-effective. *Cantrell* did not recognize torque as a result-effective variable because *Cantrell* was concerned with grinding garbage with a high liquid content. The highly viscous garbage could be processed at a constant velocity with little if any change in the torque. By contrast, when processing a feedstock consisting substantially of thermoplastic material, cellulosic fibers or combinations thereof, the torque may vary considerably depending on the proportion of thermoplastic material and cellulosic fibers be processed in the grinder at any particular time. If the feedstock is particularly dense, the torque will increase as the grinder works to process the material. In short, there is simply no suggestion or teaching in *Cantrell* by which one of ordinary skill in could have predicted that torque was a result-effective variable through the processing of garbage with a high liquid content.

Because there is no evidence in the record to support the Examiner's position that the parameter is a result-effective variable, the Applicant respectfully urges that Claims 2, 7, 12 and 17, 30, 34, 36, 41, 46 and 51 and their dependents are in condition for allowance.

b. Examiner didn't provide reason for Optimizing torque within the stated range.

To establish obviousness, it is generally necessary to provide a reason to have modified the prior art to arrive at the claimed invention. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). The Examiner has not established an evidentiary basis for optimizing the torque as required

in Applicant's claims. Even if torque would have been recognized as a result-effective variable, which, once again, is a conclusion with which the Applicant disagrees, the Examiner has not provided a reason to have required it to be between about 18,000 and about 20,000 ft-lbs of torque per motor shaft and, as a result, the Examiner has failed to show that the Applicant's invention would be obvious in view of *Cantrell*.

The Examiner states that *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish. The Examiner then concludes that *Cantrell* "obviously" recognizes that the grinder operating torque is a result-effective variable because "given that the velocity and material are ground properly, the torque would be a function of these variables." However, the Examiner has not stated, nor would it be evident to one of skill in the art, *why* grinder operating torque would be optimized at between about 18,000 and about 20,000 ft-lbs of torque per motor shaft.

When it is not obvious why a result-effective variable would be optimized within a certain range, the invention can not be deemed to be obvious. *See, e.g., Ex Parte Hofer, et al.*, 2008 WL 5232773 (Bd.Pat.App. & Interf. 2008) (finding that the Examiner has failed to show obviousness where the Examiner had not established an evidentiary basis for optimizing the diacrylic acid content to the value and theoretical plate position in a column as required by claim 1. "Even were diacrylic acid to have been recognized as a result-effective variable whose optimal value would have been routinely discovered by persons of ordinary skill in the art, the Examiner has not provided a reason to have required it to be above or equal to 550 ppm. ... Thus, it is not evident why

the skilled worker would have sought to optimize the concentration of diacrylic acid in the rectification column above a certain threshold.”).

In the present case, *Cantrell* does not suggest or teach any reason why the torque would be optimized at between about 18,000 and about 20,000 ft-lbs of torque per motor shaft as claimed by the Applicant. Accordingly, the Examiner has failed to establish that the Applicant’s invention is obvious in view of *Cantrell*. The Examiner simply concludes that *Cantrell* “obviously” recognizes that the grinder operating torque is a result-effective variable because “given that the velocity and material are ground properly, the torque would be a function of these variables.” Such an unfounded conclusion can not, and does not support an obviousness rejection. See, e.g., *Ex Parte Datta, et al.*, 2008 WL 4371720, (Bd.Pat.App. & Interf. 2008) (“Finally, the Examiner's conclusion that it would have been obvious to use first and second polymeric materials having the claimed flexural modulus as a matter of routine optimization of result-effective variables cannot be sustained without some articulated underlying basis. It is readily apparent that as a material's stiffness increases its flexibility generally decreases. However, the Examiner has not factually established general conditions of stiffness and/or flexibility in the pant-like, prefastened, disposable absorbent article art or analogous art based on the teachings of Kline and/or Battrell and/or the knowledge of one of ordinary skill in the art. Instead, the Examiner merely concludes it would have been obvious to use first and second polymeric materials having the claimed flexural modulus because a flexible material is less stiff, less rigid or less hard.”).

The Applicant respectfully urges that Claims 2, 7, 12 and 17, 30, 34, 36, 41, 46 and 51 and their dependents are in condition for allowance because the Examiner has not established an

evidentiary basis for optimizing the torque to between about 18,000 and about 20,000 ft-lbs of torque per motor shaft.

3. Grinder operating *speed* is not a result-effective variable and the Examiner has not shown why it would be optimized within the claimed range.

With respect to Claims 3, 8, 13, 18, 32, 35, 37, 42, 47 and 53, the Examiner also asserts that, because *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish, *Cantrell* “obviously” recognizes that the grinder operating speed is a result-effective variable because “it rotates so that the work piece is ground to the desired shape, size and finish.” The Examiner’s position that grinder operating speed is a result-effective variable under these circumstances is in error for at least the following reasons:

a. Grinder operating speed is not a result-effective variable.

The Examiner acknowledges that *Cantrell* does not disclose a grinder operating speed of between about 75 and about 80 rpm. The Examiner then concludes that, because *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish, “one of ordinary skill in the art would have obviously determined the optimum grinder operating speed applied in the process of *Cantrell* through routine experimentation.”

While it under certain circumstances, grinder operating speed may be a result-effective variable, *Cantrell* does not suggest or teach that speed is an important factor to consider and, consequently, speed is not a result-effective variable. See *Ex parte Tilton*, 2008WL533791 (Bd.

Pat. App. & Interf. 2008) (“While it may ordinarily be the case that determination of optimum values for the parameters of a prior art process would be at least be prima facie obvious, that conclusion depends upon what the prior art discloses with respect to those parameters.”).

Just as previously discussed with torque, the speed required for a grinder to process garbage containing a substantial amount of liquid would have been of little concern for *Cantrell*. Because the garbage going into *Cantrell*’s grinder is made up of 25 – 70% liquid, it would have a very low viscosity which could be processed at any speed desired. There would be no need to optimize the speed since virtually any speed would work, and there would certainly be no need to optimize the speed in the range of between about 75 and about 80 rpm.

A review of *Cantrell* reveals that the only mention of grinder speed appears during a general discussion of commercially available grinders. In that paragraph, *Cantrell* states “Hammer mills incorporate a rotating drum, or spindle, with free-floating hammers. The hammer mill is designed to spin at a relatively high speed.” Col. 9; lines 16-26. *Cantrell* does not disclose or suggest that grinder speed is a result-effective variable or in any way relevant for achieving the desired velocity. Although the discovery of an optimum value of a result-effective variable in a known process is ordinarily within the skill of the art, one of the long-standing exceptions to this rule is when the parameter optimized was not recognized in the prior art as one that would affect the results. *See, e.g., Ex parte Malathy*, 2003 WL 21279935 (Bd.Pat.App. & Interf. 2003); *Ex Parte Alsop*, 2001WL863722, (Bd.Pat.App. & Interf. 2001); *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977); *Ex parte Datta, et al.*, 2008WL4759864, (Bd.Pat.App. & Interf. 2008).

When there is no evidence in the record to support the Examiner’s position that the parameter is a result-effective variable, the variable cannot be deemed to be result-effective. *See,*

e.g., Ex Parte Hofer, et al., 2008 WL 5232773 (Bd.Pat.App. & Interf. 2008). *Cantrell* did not recognize speed as a result-effective variable because *Cantrell* was concerned with grinding garbage with a high liquid content. The highly viscous garbage could be processed at any speed desired. In short, there is simply no suggestion or teaching in *Cantrell* by which one of ordinary skill in could have predicted that speed was a result-effective variable through the processing of garbage with a high liquid content.

Because there is no evidence in the record to support the Examiner's position that the parameter is a result-effective variable, the Applicant respectfully urges that the Claims as presented are in condition for allowance.

b. Examiner didn't provide reason for Optimizing speed within the stated range.

To establish obviousness, it is generally necessary to provide a reason to have modified the prior art to arrive at the claimed invention. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. at 1741. The Examiner has not established an evidentiary basis for optimizing the grinder operating speed as required in Applicant's claims. Even if speed would have been recognized as a result-effective variable, which, once again, is a conclusion with which the Applicant disagrees, the Examiner has not provided a reason to have required it to be between about 75 and about 80 rpm and, as a result, the Examiner has failed to show that the Applicant's invention would be obvious in view of *Cantrell*.

The Examiner states that *Cantrell* teaches that the grinder operates at a rated velocity depending upon the configuration of the machine used and that it rotates so that the work piece is ground to the desired shape, size, and finish. The Examiner then concludes that *Cantrell*

“obviously” recognizes that the grinder operating speed is a result-effective variable because the grinder “rotates so that the work piece is ground to the desired shape, size and finish.” However, the Examiner has not stated, nor would it be evident to one of skill in the art, *why* grinder operating speed would be optimized at between about 75 and about 80 rpm.

When it is not obvious why a result-effective variable would be optimized within a certain range, the invention cannot be deemed to be obvious. *See, e.g., Ex Parte Hofer, et al.*, 2008 WL 5232773 (Bd.Pat.App. & Interf. 2008). In the present case, *Cantrell* does not suggest or teach any reason why the speed would be optimized at between about 75 and about 80 rpm as claimed by the Applicant. Accordingly, the Examiner has failed to establish that the Applicant’s invention is obvious in view of *Cantrell*. The Examiner simply concludes that *Cantrell* “obviously” recognizes that the grinder operating speed is a result-effective variable. Such an unfounded conclusion cannot, and does not support an obviousness rejection. *See, e.g., Ex Parte Datta, et al.*, 2008 WL 4371720 (Bd.Pat.App. & Interf. 2008).

The Applicant respectfully urges that all claims are in condition for allowance because the Examiner has not established an evidentiary basis for optimizing the speed to between about 75 and about 80 rpm.

CONCLUSION

In view of the foregoing remarks, the Applicant respectfully submits that all pending claims are allowable over the art of record and respectfully requests a timely Notice of Allowance. If the Examiner does not believe the pending claims are in condition for allowance, Applicant respectfully requests that the Examiner contact Applicant's attorney to arrange an interview before the Examiner issues another Office Action.

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